

## **CLAIMS**

What is claimed is:

- 1 1. An apparatus comprising:
  - 2 a comparison unit coupled to an output of a final stage of multiple stages in a
  - 3 receiver channel; and
  - 4 a controller coupled to the comparison unit to calibrate each of the multiple
  - 5 stages.
  
- 1 2. The apparatus of claim 1, wherein the comparison unit includes a single
- 2 comparator coupled to the output of the final stage, the output to provide a signal
- 3 representative of a received signal at an input to the receiver channel.
  
- 1 3. The apparatus of claim 1, wherein the controller is adapted to decouple from
- 2 the receiver channel to characterize performance of the receiver channel.
  
- 1 4. The apparatus of claim 1, wherein the controller is reconfigurable to test the
- 2 receiver channel.
  
- 1 5. The apparatus of claim 1, wherein the apparatus is a portable wireless
- 2 receiver.
  
- 1 6. An apparatus comprising:
  - 2 multiple calibration circuits to calibrate multiple stages in a receiver channel;
  - 3 and
  - 4 a controller coupled to an output of a final stage of the multiple stages, the
  - 5 controller to control each of the multiple calibration circuits.

1   7.     The apparatus of claim 6, wherein the controller includes a single  
2   comparator coupled to the output of the final stage, the final stage output to provide  
3   a signal representative of a received signal at an input to the receiver channel.

1   8.     The apparatus of claim 7, wherein each calibration circuit is assigned to one  
2   stage of the multiple stages, the multiple stages being a sequence of filter stages in  
3   the receiver channel.

1   9.     The apparatus of claim 6, wherein each calibration circuit is adapted to  
2   provide a DC offset calibration.

1   10.    The apparatus of claim 6, wherein the multiple calibration circuits and the  
2   controller are adapted to decouple from the receiver channel.

1   11.    The apparatus of claim 6, wherein the controller includes a stage selection  
2   circuit to sequentially calibrate each stage of the multiple stages, wherein each of  
3   the calibration circuits is assigned to a separate one of the multiple stages.

1   12.    The apparatus of claim 11, wherein the controller includes:  
2            a comparison unit coupled to the final stage to evaluate a received signal  
3            propagating through the receiver channel;  
4            multiple registers coupled to the stage selection circuit, each register  
5            associated with a separate one of the multiple stages, each register to hold a signal to  
6            provide DC offset calibration to its associated stage; and  
7            a modulator to provide each register with its signal to provide DC offset  
8            calibration to its associated stage, the modulator responsive to an output of the  
9            comparison unit.

1   13.    The apparatus of claim 11, wherein the comparison unit is adapted to  
2   compare differential intermediate versions of the received signal.

1    14.    The apparatus of claim 6, wherein the controller is reconfigurable to test the  
2    receiver channel.

1    15.    The apparatus of claim 14, wherein the controller includes:  
2              a stage selection circuit to select one or more of the multiple stages to  
3    receive a test signal;  
4              multiple registers, each register associated with a separate one of the  
5    multiple stages to provide its associated stage with its test signal, each register  
6    responsive to the stage selection circuit;  
7              a modulator having a test enable input and test signal circuits to provide each  
8    register with its test signal.

1    16.    A system comprising:  
2              a substantially omnidirectional antenna to receive a signal;  
3              a bandpass filter coupled to the antenna; and  
4              a receiver channel having multiple stages to convert the signal;  
5              multiple calibration circuits to provide calibration to the multiple stages; and  
6              a controller coupled to an output of a final stage of the multiple stages, the  
7    controller to control each of the multiple calibration circuits.

1    17.    The system of claim 16, wherein the controller includes a single comparator  
2    coupled to the final stage of the multiple stages in the receiver channel.

1    18.    The system of claim 16, wherein the controller includes a stage selection  
2    circuit to sequentially calibrate each stage in the multiple stages, wherein each of the  
3    calibration circuits is assigned to a separate one of the multiple stages.

1    19.    The system of claim 16, wherein the multiple calibration circuits and the  
2    controller are adapted to decouple from the receiver channel.

1    20.    The system of claim 16, wherein the controller is reconfigurable to test the  
2    receiver channel.

1    21.    The system of claim 16, wherein the system is a portable wireless  
2    communication system.

1    22.    A method comprising:  
2         evaluating a received signal from an output of a final stage of multiple stages  
3         in a receiver channel using a single comparison unit;  
4         selectively controlling the calibration of each stage of the multiple stages  
5         based on an output from the single comparison unit.

1    23.    The method of claim 22, wherein using a single comparison unit includes  
2    using a single comparator.

1

1    24.    The method of claim 22, wherein selectively controlling the calibration of  
2    the multiple stages includes reducing a DC offset to less than 0.5 mV for each stage.

1    25.    The method of claim 22, wherein selectively controlling the calibration of  
2    the multiple stages includes decoupling a controller having the single comparison  
3    unit as an input component from the receiver channel and decoupling calibration  
4    circuits that are adapted to calibrate the multiple stages from the receiver channel.

1    26.    The method of claim 25, wherein the method further includes characterizing  
2    a performance of the receiver channel with the controller and calibration circuits  
3    decoupled from the receiver channel.

1    27.    The method of claim 22, wherein selectively controlling the calibration of  
2    the multiple stages includes reconfiguring a controller having the single comparator  
3    as an input component to test the receiver channel.

1    28.    The method of claim 27, wherein the method further includes using the  
2    controller to generate a linear ramp signal to test the receiver channel.

1    29.    A computer-readable medium having computer-executable instructions for  
2    performing a method comprising:  
3                controlling operational modes of a controller coupled to an output of a final  
4    stage of multiple stages in a receiver channel, wherein one operational mode  
5    includes calibrating each stage of the multiple stages based on evaluating a received  
6    signal from the final stage using a single comparison unit.

1    30.    The computer-readable medium of claim 29, wherein controlling operational  
2    modes includes providing a selection bypass signal to decouple the controller from  
3    the receiver channel and providing instructions to characterize a performance of the  
4    receiver channel with the controller decoupled from the receiver channel.

1    31.    The computer-readable medium of claim 29, wherein controlling operational  
2    modes includes providing a test enable signal to configure the controller to test the  
3    receiver channel.